US Instrument Options for the SPICA Observatory

NASA has engaged in studying options for a US contribution to the Japanese-led Space Infra-Red Telescope for Cosmology and Astrophysics (SPICA). This cryogenic 3m-class telescope builds on the scientific and technological legacies of Akari and Herschel. The primary portion of a US contribution would be a far-infrared spectrometer, but with a sensitivity several hundred times greater than Herschel, opening up this wavelength range for study of emission lines from galaxies up to the highest redshifts. We describe efforts to formulate an approach that fits within project and programmatic constraints and fulfills the scientific promise of the SPICA observatory.

NASA has engaged in studying options for a US contribution to the Japanese-led Space Infra-Red Telescope for Cosmology and Astrophysics (SPICA). This cryogenic 3m-class mid-to-far-infrared telescope provides a natural successor platform to the successful Akari and Herschel missions, building on both a scientific and technological legacy. The primary portion of a US contribution would be a far-infrared high sensitivity spectrometer covering approximately the wavelength range of the Herschel instrument suite. On a cryogenic telescope, the line sensitivity would be several hundred times greater, opening up this wavelength range for study at an unprecedented level and detecting emission lines from galaxies at the highest redshifts. The accommodation available for a US instrument is tightly constrained, putting stringent limits on the design. We describe current efforts to formulate an approach that fits within project and programmatic constraints and fulfills the scientific promise of the SPICA observatory.

Biography:

Dr. Benford received the Ph.D. in Astrophysics from Caltech in research on the development and use of bolometer instruments for detecting distant galaxies. He has been at NASA's Goddard Space Flight Center in Greenbelt, Maryland since 1999. He has pursued research in far-infrared bolometric detectors, long wavelength observations of star forming regions and ultraluminous galaxies, and cryogenic instrumentation for space observatories. His primary research focus is in observational extragalactic astronomy and cosmology and developing ultrasensitive instruments for far-infrared and submillimeter astronomy. He is currently the Chief Scientist of NASA's Cosmic Origins Program Office and the Deputy Mission Scientist for the Wide-Field Infrared Survey Explorer (WISE).

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